

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): An image bearing member unit comprising:

an image bearing member on which a toner image is formed; and

a support member supporting the image bearing member such that the image bearing member protrudes through an opening formed in the support member, the support member including a shutter housing space for housing a shutter when the shutter is in an opened position,

wherein the image bearing member unit is configured to be drawn out of and put into a main body of an image forming apparatus, and

wherein the image bearing member unit further comprises the shutter assembled with the support member to move in directions, substantially perpendicular to directions in which the image bearing member unit is drawn out of and put into the main body of the image forming apparatus, to be located, when the image bearing member unit has been drawn out of the main body of the image forming apparatus, in a closed position wherein the shutter covers the image bearing member protruding through the opening formed in the support member, and to be located, when the image bearing member unit has been set in a predetermined position inside of the main body of the image forming apparatus, in the opened position wherein the shutter does not cover the image bearing member protruding through the opening formed in the support member, and wherein the shutter moves to the closed position and to the opened position in conjunction with operations of attaching and detaching the image bearing member unit to and from the main body of the image forming apparatus.

Claim 2 (Original): The image bearing member unit according to Claim 1,  
wherein the support member includes a guide part to guide the shutter to move in the  
directions substantially perpendicular to the directions in which the image bearing member  
unit is drawn out of and put into the main body of the image forming apparatus.

Claim 3 (Canceled).

Claim 4 (Original): The image bearing member unit according to Claim 1, further  
comprising:

a guide member assembled with the support member to move in directions  
substantially parallel to the directions in which the image bearing member unit is drawn out  
of and put into the main body of the image forming apparatus,

wherein a guide protrusion part is provided to the shutter to protrude and a guide slot  
is formed in the guide member, and the guide protrusion part provided to the shutter is  
slidably engaged with the guide slot formed in the guide member such that the shutter moves  
to the closed position or the opened position by relative movement of the guide member  
relative to the support member in the directions substantially parallel to the directions in  
which the image bearing member unit is drawn out of and put into the main body of the  
image forming apparatus.

Claim 5 (Original): The image bearing member unit according to Claim 4,  
wherein the guide slot extends in a direction slanted relative to the directions in which  
the image bearing member unit is drawn out of and put into the main body of the image  
forming apparatus.

Claim 6 (Original): The image bearing member unit according to Claim 4,  
wherein plural pieces of the guide protrusion part are provided to the shutter and plural pieces of the guide slot are formed in the guide member, and the plural pieces of the guide protrusion part provided to the shutter are slidably engaged with the plural pieces of the guide slot formed in the guide member, respectively.

Claim 7 (Original): The image bearing member unit according to Claim 5,  
wherein parts of the guide slot where the guide protrusion part is engaged with the guide slot when the shutter is in the closed position and the opened position, respectively, and respective neighboring parts thereof extend in a direction substantially parallel to the directions in which the image bearing member unit is drawn out of and put into the main body of the image forming apparatus.

Claim 8 (Original): The image bearing member unit according to Claim 4,  
wherein an engaging part is provided to the guide member to stop the guide member relative to the main body of the image forming apparatus in cooperation with a counterpart engaging part located inside of the main body of the image forming apparatus when the image bearing member unit is drawn out of and put into the main body of the image forming apparatus, and

wherein the shutter is moved to the closed position or the opened position by stopping the guide member relative to the main body of the image forming apparatus with a cooperative operation of the engaging part provided to the guide member and the counterpart engaging part located inside of the main body of the image forming apparatus and by moving the support member, the image bearing member unit and the shutter in the directions in which

the image bearing member unit is drawn out of and put into the main body of the image forming apparatus.

Claim 9 (Original): The image bearing member unit according to Claim 8, wherein the guide member is stopped relative to the main body of the image forming apparatus by holding the engaging part to the counterpart engaging part with a magnetic force.

Claim 10 (Original): The image bearing member unit according to Claim 4, wherein a pressing member is provided to press the guide member in a direction substantially parallel to a direction in which the image bearing member unit is pushed to be put into the main body of the image forming apparatus, and wherein when the image bearing member unit has been taken out of the main body of the image forming apparatus, by an operation of the pressing member, the guide member is pressed to a most backside position relative to the support member in the direction in which the image bearing member unit is pushed to be put into the main body of the image forming apparatus, so that the shutter is held in the closed position, and when the image bearing member unit is pushed to be put into the main body of the image forming apparatus, by a stopper provided at the side of the main body of the image forming apparatus, the guide member is stopped relative to the main body while resisting against the operation of the pressing member, so that the shutter is moved to the opened position.

Claim 11 (Original): The image bearing member unit according to Claim 1, further comprising:

at least one wire spring fixed to the support member at one end thereof and contacting the support member at the other end thereof to slide in directions substantially parallel to the directions in which the image bearing member unit is drawn out and put into the main body of the image forming apparatus; and

a slider slidably holding the at least one wire spring and assembled with the support member to slide in directions substantially parallel to the directions in which the image bearing member unit is drawn out and put into the main body of the image forming apparatus,

wherein a middle part of the at least one wire spring between the one end and the other end thereof is fixed to the shutter, and the middle part of the at least one wire spring fixed to the shutter protrudes from a position of the one end and the other end of the at least one wire spring in a direction in which the shutter moves when the shutter moves to the closed position, and

wherein a positional relation among the slider, the at least one wire spring and the shutter is set such that the slider slides relative to the at least one wire spring in the directions substantially parallel to the directions in which the image bearing member unit is drawn out and put into the main body of the image forming apparatus to deform the at least one wire spring and thereby the shutter is moved to the closed position or the opened position.

Claim 12 (Original): The image bearing member unit according to Claim 11,

wherein the slider is configured to stop relative to the main body of the image forming apparatus when the image bearing member unit is drawn out of and put into the main body of the image forming apparatus by a cooperative operation with a counterpart engaging part located inside of the main body of the image forming apparatus, and

wherein the shutter is moved to the closed position or the opened position by stopping the slider relative to the main body of the image forming apparatus and by moving the

support member, the shutter, and the at least one wire spring in the directions in which the image bearing member unit is drawn out of and put into the main body of the image forming apparatus to deform the at least one wire spring.

Claim 13 (Original): The image bearing member unit according to Claim 12, wherein the slider is stopped relative to the main body of the image forming apparatus by holding the slider relative to the counterpart engaging part by a magnetic force.

Claim 14 (Original): The image bearing member unit according to Claim 11, wherein the slider is slidably assembled with a part of the at least one wire spring between the one end thereof fixed to the support member and the middle part thereof fixed to the shutter.

Claim 15 (Original): The image bearing member unit according to Claim 11, wherein the part of the at least one wire spring with which the slider is slidably assembled is curved to protrude in the direction in which the shutter moves to the opened position.

Claim 16 (Original): The image bearing member unit according to Claim 11, wherein a guide part of the slider holding the at least one wire spring extends in a direction substantially parallel to the directions in which the slider slides.

Claim 17 (Original): The image bearing member unit according to Claim 1, further comprising:

a regulating device to regulate a position of a part of the shutter opposing the image bearing member when the shutter is located in the closed position such that when the shutter is located in the closed position the part of the shutter opposing the image bearing member does not contact an image forming area surface of the image bearing member.

Claim 18 (Original): The image bearing member unit according to Claim 17, wherein the regulating device includes a flange of the image bearing member, protruding toward the outside from a position of the image forming area surface of the image bearing member.

Claim 19 (Original): The image bearing member unit according to Claim 17, wherein the regulating device includes a regulating protrusion formed in the support member.

Claim 20 (Original): The image bearing member unit according to Claim 17, wherein the regulating device includes a regulating protrusion part formed in the shutter to contact a part of the image bearing member other than the image forming area surface thereof.

Claim 21 (Original): The image bearing member unit according to Claim 1, wherein a part of the shutter, opposing the image forming area surface of the image bearing member when the image bearing member unit is in the closed position, is formed in a shape curved substantially along the image forming area surface of the image bearing member.

Claim 22 (Original): The image bearing member unit according to Claim 1,  
wherein a part of the shutter, opposing the image forming area surface of the image bearing member when the image bearing member unit is in the closed position, is bent at a bending part thereof provided along an axial line of the image bearing member.

Claim 23 (Original): The image bearing member unit according to Claim 1,  
wherein a receiving part is provided to the support member to engage with a tip end part of the shutter when the shutter is in the closed position, so that a gap is prevented from being formed between the tip end of the shutter and an edge of the support member at the side of the opening formed in the support member.

Claim 24 (Original): The image bearing member unit according to Claim 1,  
wherein the shutter is arranged such that when the shutter is in the closed position, a flash formed at an edge part of the shutter when the shutter has been molded is located at a side separated from a surface of the image bearing member.

Claim 25 (Original): The image bearing member unit according to Claim 1,  
wherein a tip end part corner of the shutter, opposing a surface of the image bearing member when the shutter is in the closed position, is formed in a round shape.

Claim 26 (Original): The image bearing member unit according to Claim 1,  
wherein at least a surface of the shutter, opposing the image bearing member, is conductive.

Claim 27 (Original): The image bearing member unit according to Claim 1,



wherein the shutter and the support member are made of a same material.

Claim 28 (Currently Amended): A process cartridge comprising:

an image bearing member unit including an image bearing

member and a support member supporting the image bearing member such that the image bearing member protrudes through an opening formed in the support member, the support member including a shutter housing space for housing a shutter when the shutter is in an opened position; and

at least one process device configured to form a toner image on the image bearing member of the image bearing member unit,

wherein the image bearing member unit is configured to be drawn out of and put into a main body of an image forming apparatus, and

wherein the image bearing member unit further includes the shutter assembled with the support member to move in directions, substantially perpendicular to directions in which the image bearing member unit is drawn out of and put into the main body of the image forming apparatus, to be located, when the image bearing member unit has been drawn out of the main body of the image forming apparatus, in a closed position wherein the shutter covers the image bearing member protruding through the opening formed in the support member, and to be located, when the image bearing member unit has been set in a predetermined position inside of the main body of the image forming apparatus, in the opened position wherein the shutter does not cover the image bearing member protruding through the opening formed in the support member, and wherein the shutter of the image bearing member unit moves to the closed position and to the opened position in conjunction with operations of attaching and detaching the image bearing member unit to and from the main body of the image forming apparatus.

Claim 29 (Original): The process cartridge according to Claim 28,  
wherein the support member of the image bearing member unit includes a guide part to guide the shutter to move in the directions substantially perpendicular to the directions in which the image bearing member unit is drawn out of and put into the main body of the image forming apparatus.

Claim 30 (Canceled).

Claim 31 (Original): The process cartridge according to Claim 28,  
wherein the image bearing member unit further includes  
a guide member assembled with the support member to move in directions substantially parallel to the directions in which the image bearing member unit is drawn out of and put into the main body of the image forming apparatus,  
wherein a guide protrusion part is provided to the shutter to protrude and a guide slot is formed in the guide member, and the guide protrusion part provided to the shutter is slidably engaged with the guide slot formed in the guide member such that the shutter moves to the closed position or the opened position by relative movement of the guide member relative to the support member in the directions substantially parallel to the directions in which the image bearing member unit is drawn out of and put into the main body of the image forming apparatus.

Claim 32 (Original): The process cartridge according to Claim 31,

wherein the guide slot formed in the guide member extends in a direction slanted relative to the directions in which the image bearing member unit is drawn out of and put into the main body of the image forming apparatus.

Claim 33 (Original): The process cartridge according to Claim 31,  
wherein plural pieces of the guide protrusion part are provided to the shutter and plural pieces of the guide slot are formed in the guide member, and the plural pieces of the guide protrusion part provided to the shutter are slidably engaged with the plural pieces of the guide slot formed in the guide member, respectively.

Claim 34 (Original): The process cartridge according to Claim 32,  
wherein parts of the guide slot formed in the guide member, where the guide protrusion part provided to the shutter is engaged with the guide slot when the shutter is in the closed position and the opened position, respectively, and respective neighboring parts thereof extend in a direction substantially parallel to the directions in which the image bearing member unit is drawn out of and put into the main body of the image forming apparatus.

Claim 35 (Original): The process cartridge according to Claim 31,  
wherein an engaging part is provided to the guide member to stop the guide member relative to the main body of the image forming apparatus in cooperation with a counterpart engaging part located inside of the main body of the image forming apparatus when the image bearing member unit is drawn out of and put into the main body of the image forming apparatus, and the shutter is moved to the closed position or the opened position by stopping the guide member relative to the main body of the image forming apparatus with a

cooperative operation of the engaging part provided to the guide member and the counterpart engaging part located inside of the main body of the image forming apparatus and by moving the support member, the image bearing member unit and the shutter in the directions in which the image bearing member unit is drawn out of and put into the main body of the image forming apparatus.

Claim 36 (Original): The process cartridge according to Claim 35,  
wherein the guide member is stopped relative to the main body of the image forming apparatus by holding the engaging part to the counterpart engaging part with a magnetic force.

Claim 37 (Original): The process cartridge according to Claim 31  
wherein a pressing member is provided to press the guide member in a direction substantially parallel to a direction in which the image bearing member unit is pushed to be put into the main body of the image forming apparatus, and when the image bearing member unit has been taken out of the main body of the image forming apparatus, by an operation of the pressing member, the guide member is pressed to a most backside position relative to the support member in the direction in which the image bearing member unit is pushed to be put into the main body of the image forming apparatus, so that the shutter is held in the closed position, and when the image bearing member unit is pushed to be put into the main body of the image forming apparatus, by a stopper provided at the side of the main body of the image forming apparatus, the guide member is stopped relative to the main body while resisting against the operation of the pressing member, so that the shutter is moved to the opened position.

Claim 38 (Original): The process cartridge according to Claim 28,

wherein the image bearing member unit further includes at least one wire spring fixed to the support member at one end thereof and contacting the support member at the other end thereof to slide in directions substantially parallel to the directions in which the image bearing member unit is drawn out and put into the main body of the image forming apparatus, and

a slider slidably holding the at least one wire spring and assembled with the support member to slide in directions substantially parallel to the directions in which the image bearing member unit is drawn out and put into the main body of the image forming apparatus, and

wherein a middle part of the at least one wire spring between the one end and the other end thereof is fixed to the shutter, the middle part of the at least one wire spring fixed to the shutter protrudes from positions of the one end and the other end of the at least one wire spring in a direction in which the shutter moves when the shutter moves to the closed position, and a positional relation among the slider, the at least one wire spring and the shutter is set such that the slider slides relative to the at least one wire spring in the directions substantially parallel to the directions in which the image bearing member unit is drawn out and put into the main body of the image forming apparatus to deform the at least one wire spring and thereby the shutter is moved to the closed position or the opened position.

Claim 39 (Original): The process cartridge according to Claim 38,

wherein the slider of the image bearing member unit is configured to stop relative to the main body of the image forming apparatus when the image bearing member unit is drawn out of and put into the main body of the image forming apparatus by a cooperative operation with a counterpart engaging part located inside of the main body of the image forming apparatus, and

wherein the shutter is moved to the closed position or the opened position by stopping the slider relative to the main body of the image forming apparatus and by moving the support member, the shutter, and the at least one wire spring in the directions in which the image bearing member unit is drawn out of and put into the main body of the image forming apparatus to deform the at least one wire spring.

Claim 40 (Original): The process cartridge according to Claim 39,  
wherein the slider is stopped relative to the main body of the image forming apparatus by holding the slider relative to the counterpart engaging part by a magnetic force.

Claim 41 (Original): The process cartridge according to Claim 38,  
wherein the slider is slidably assembled with a part of the at least one wire spring between the one end thereof fixed to the support member and the middle part thereof fixed to the shutter.

Claim 42 (Original): The process cartridge according to Claim 38,  
wherein the part of the at least one wire spring with which the slider is slidably assembled is curved to protrude in the direction in which the shutter moves to the opened position.

Claim 43 (Original): The process cartridge according to Claim 38,  
wherein a guide part of the slider holding the at least one wire spring extends in a direction substantially parallel to the directions in which the slider slides.

Claim 44 (Original): The process cartridge according to Claim 28,  
wherein the image bearing member unit further includes a regulating device to regulate a position of a part of the shutter opposing the image bearing member when the shutter is located in the closed position such that when the shutter is located in the closed position the part of the shutter opposing the image bearing member does not contact an image forming area surface of the image bearing member.

Claim 45 (Original): The process cartridge according to Claim 44,  
wherein the regulating device of the image bearing member unit includes a flange of the image bearing member, protruding toward the outside from a position of the image forming area surface of the image bearing member.

Claim 46 (Original): The process cartridge according to Claim 44,  
wherein the regulating device of the image bearing member unit includes a regulating protrusion formed in the support member.

Claim 47 (Original): The process cartridge according to Claim 44,  
wherein the regulating device of the image bearing member unit includes a regulating protrusion part formed in the shutter to contact a part of the image bearing member other than the image forming area surface thereof.

Claim 48 (Original): The process cartridge according to Claim 28,  
wherein a part of the shutter, opposing the image forming area surface of the image bearing member when the image bearing member unit is in the closed position, is formed in a

shape curved substantially along the image forming area surface of the image bearing member.

Claim 49 (Original): The process cartridge according to Claim 28,  
wherein a part of the shutter, opposing the image forming area surface of the image bearing member when the image bearing member unit is in the closed position, is bent at a bending part thereof provided along an axial line of the image bearing member.

Claim 50 (Original): The process cartridge according to Claim 28,  
wherein a receiving part is provided to the support member to engage with a tip end part of the shutter when the shutter is in the closed position, so that a gap is prevented from being formed between the tip end of the shutter and an edge of the support member at the side of the opening formed in the support member.

Claim 51 (Original): The process cartridge according to Claim 28,  
wherein the shutter is arranged such that when the shutter is in the closed position, a flash formed at an edge part of the shutter when the shutter has been molded is located at a side separated from a surface of the image bearing member.

Claim 52 (Original): The process cartridge according to Claim 28,  
wherein a tip end part corner of the shutter, opposing a surface of the image bearing member when the shutter is in the closed position, is formed in a round shape.



Claim 53 (Original): The process cartridge according to Claim 28,  
wherein at least a surface of the shutter, opposing the image bearing member, is  
conductive.

Claim 54 (Original): The process cartridge according to Claim 28,  
wherein the shutter and the support member are made of a same material.

Claim 55 (Original): The process cartridge according to Claim 28,  
wherein the image bearing member unit is detachable relative to a part of the process  
cartridge.

Claim 56 (Currently Amended): An image forming apparatus comprising:  
a main body;  
an image bearing member unit including an image bearing  
member and a support member supporting the image bearing member such that the  
image bearing member protrudes through an opening formed in the support member, the  
support member including a shutter housing space for housing a shutter when the shutter is in  
an opened position; and

at least one process device configured to form a toner image on the image bearing  
member of the image bearing member unit,

wherein the image bearing member unit is configured to be drawn out of and put into  
the main body, and

wherein the image bearing member unit further includes the shutter assembled with  
the support member to move in directions, substantially perpendicular to directions in which  
the image bearing member unit is drawn out of and put into the main body, to be located,

when the image bearing member unit has been drawn out of the main body, in a closed position wherein the shutter covers the image bearing member protruding through the opening formed in the support member, and to be located, when the image bearing member unit has been set in a predetermined position inside of the main body, in the opened position wherein the shutter does not cover the image bearing member protruding through the opening formed in the support member, and wherein the shutter of the image bearing member unit moves to the closed position and to the opened position in conjunction with operations of attaching and detaching the image bearing member unit to and from the main body.

Claim 57 (Original): The image forming apparatus according to Claim 56,  
wherein the support member of the image bearing member unit includes a guide part to guide the shutter to move in the directions substantially perpendicular to the directions in which the image bearing member unit is drawn out of and put into the main body.

Claim 58 (Canceled).

Claim 59 (Original): The image forming apparatus according to Claim 56,  
wherein the image bearing member unit further includes  
a guide member assembled with the support member to move in directions substantially parallel to the directions in which the image bearing member unit is drawn out of and put into the main body,  
wherein a guide protrusion part is provided to the shutter to protrude and a guide slot is formed in the guide member, and the guide protrusion part provided to the shutter is slidably engaged with the guide slot formed in the guide member such that the shutter moves to the closed position or the opened position by relative movement of the guide member

relative to the support member in the directions substantially parallel to the directions in which the image bearing member unit is drawn out of and put into the main body.

Claim 60 (Original): The image forming apparatus according to Claim 59, wherein the guide slot formed in the guide member extends in a direction slanted relative to the directions in which the image bearing member unit is drawn out of and put into the main body.

Claim 61 (Original): The image forming apparatus according to Claim 59, wherein plural pieces of the guide protrusion part are provided to the shutter and plural pieces of the guide slot are formed in the guide member, and the plural pieces of the guide protrusion part provided to the shutter are slidably engaged with the plural pieces of the guide slot formed in the guide member, respectively.

Claim 62 (Original): The image forming apparatus according to Claim 60, wherein parts of the guide slot formed in the guide member, where the guide protrusion part provided to the shutter is engaged with the guide slot when the shutter is in the closed position and the opened position, respectively, and respective neighboring parts thereof extend in a direction substantially parallel to the directions in which the image bearing member unit is drawn out of and put into the main body.

Claim 63 (Original): The image forming apparatus according to Claim 59, wherein an engaging part is provided to the guide member to stop the guide member relative to the main body in cooperation with a counterpart engaging part located inside of the main body when the image bearing member unit is drawn out of and put into the main body,

and the shutter is moved to the closed position or the opened position by stopping the guide member relative to the main body with a cooperative operation of the engaging part provided to the guide member and the counterpart engaging part located inside of the main body and by moving the support member, the image bearing member unit and the shutter in the directions in which the image bearing member unit is drawn out of and put into the main body.

Claim 64 (Original): The image forming apparatus according to Claim 63, wherein the guide member is stopped relative to the main body by holding the engaging part to the counterpart engaging part with a magnetic force.

Claim 65 (Original): The image forming apparatus according to Claim 59, wherein a pressing member is provided to press the guide member in a direction substantially parallel to a direction in which the image bearing member unit is pushed to be put into the main body, and when the image bearing member unit has been taken out of the main body, by an operation of the pressing member, the guide member is pressed to a most backside position relative to the support member in the direction in which the image bearing member unit is pushed to be put into the main body, so that the shutter is held in the closed position, and when the image bearing member unit is pushed to be put into the main body, by a stopper provided at the side of the main body, the guide member is stopped relative to the main body while resisting against the operation of the pressing member, so that the shutter is moved to the opened position.

Claim 66 (Original): The image forming apparatus according to Claim 56,

wherein the image bearing member unit further includes at least one wire spring fixed to the support member at one end thereof and contacting the support member at the other end thereof to slide in directions substantially parallel to the directions in which the image bearing member unit is drawn out and put into the main body, and a slider slidably holding the at least one wire spring and assembled with the support member to slide in directions substantially parallel to the directions in which the image bearing member unit is drawn out and put into the main body, and

wherein a middle part of the at least one wire spring between the one end and the other end thereof is fixed to the shutter, the middle part of the at least one wire spring fixed to the shutter protrudes from positions of the one end and the other end of the at least one wire spring in a direction in which the shutter moves when the shutter moves to the closed position, and a positional relation among the slider, the at least one wire spring and the shutter is set such that the slider slides relative to the at least one wire spring in the directions substantially parallel to the directions in which the image bearing member unit is drawn out and put into the main body to deform the at least one wire spring and thereby the shutter is moved to the closed position or the opened position.

Claim 67 (Original): The image forming apparatus according to Claim 66,

wherein the slider of the image bearing member unit is configured to stop relative to the main body when the image bearing member unit is drawn out of and put into the main body by a cooperative operation with a counterpart engaging part located inside of the main body, and

wherein the shutter is moved to the closed position or the opened position by stopping the slider relative to the main body and by moving the support member, the shutter, and the at

least one wire spring in the directions in which the image bearing member unit is drawn out of and put into the main body to deform the at least one wire spring.

Claim 68 (Original): The image forming apparatus according to Claim 67,  
wherein the slider is stopped relative to the main body by holding the slider relative to the counterpart engaging part by a magnetic force.

Claim 69 (Original): The image forming apparatus according to Claim 66,  
wherein the slider is slidably assembled with a part of the at least one wire spring between the one end thereof fixed to the support member and the middle part thereof fixed to the shutter.

Claim 70 (Original): The image forming apparatus according to Claim 66,  
wherein the part of the at least one wire spring with which the slider is slidably assembled is curved to protrude in the direction in which the shutter moves to the opened position.

Claim 71 (Original): The image forming apparatus according to Claim 66,  
wherein a guide part of the slider holding the at least one wire spring extends in a direction substantially parallel to the directions in which the slider slides.

Claim 72 (Original): The image forming apparatus according to Claim 56,  
wherein the image bearing member unit further includes a regulating device to regulate a position of a part of the shutter opposing the image bearing member when the shutter is located in the closed position such that when the shutter is located in the closed

position the part of the shutter opposing the image bearing member does not contact an image forming area surface of the image bearing member.

Claim 73 (Original): The image forming apparatus according to Claim 72,  
wherein the regulating device of the image bearing member unit includes a flange of the image bearing member, protruding toward the outside from a position of the image forming area surface of the image bearing member.

Claim 74 (Original): The image forming apparatus according to Claim 72,  
wherein the regulating device of the image bearing member unit includes a regulating protrusion formed in the support member.

Claim 75 (Original): The image forming apparatus according to Claim 72,  
wherein the regulating device of the image bearing member unit includes a regulating protrusion part formed in the shutter to contact a part of the image bearing member other than the image forming area surface thereof.

Claim 76 (Original): The image forming apparatus according to Claim 56,  
wherein a part of the shutter, opposing the image forming area surface of the image bearing member when the image bearing member unit is in the closed position, is formed in a shape curved substantially along the image forming area surface of the image bearing member.

Claim 77 (Original): The image forming apparatus according to Claim 56,

wherein a part of the shutter, opposing the image forming area surface of the image bearing member when the image bearing member unit is in the closed position, is bent at a bending part thereof provided along an axial line of the image bearing member.

Claim 78 (Original): The image forming apparatus according to Claim 56,  
wherein a receiving part is provided to the support member to engage with a tip end part of the shutter when the shutter is in the closed position, so that a gap is prevented from being formed between the tip end of the shutter and an edge of the support member at the side of the opening formed in the support member.

Claim 79 (Original): The image forming apparatus according to Claim 56,  
wherein the shutter is arranged such that when the shutter is in the closed position, a flash formed at an edge part of the shutter when the shutter has been molded is located at a side separated from a surface of the image bearing member.

Claim 80 (Original): The image forming apparatus according to Claim 56,  
wherein a tip end part corner of the shutter, opposing a surface of the image bearing member when the shutter is in the closed position, is formed in a round shape.

Claim 81 (Original): The image forming apparatus according to Claim 56,  
wherein at least a surface of the shutter, opposing the image bearing member, is conductive.

Claim 82 (Original): The image forming apparatus according to Claim 56,  
wherein the shutter and the support member are made of a same material.



Claim 83 (Original): The image forming apparatus according to Claim 56,  
wherein the image bearing member unit and the at least one process device are  
assembled with each other to form a process cartridge.

Claim 84 (Original): The image forming apparatus according to Claim 83,  
wherein the image bearing member unit is detachable relative to a part of the process  
cartridge.

Claim 85 (Original): The image forming apparatus according to Claim 56,  
further comprising:  
a detect device configured to detect if the shutter remains in the closed position when  
the image bearing member unit has been set in the predetermined position inside of the main  
body.

Claim 86 (Original): An image bearing member unit comprising:  
an image bearing member on which a toner image is formed;  
a support member supporting the image bearing member such that the image bearing  
member protrudes through an opening formed in the support member;  
a shutter assembled with the support member to move between an opened position  
wherein the shutter does not cover the image bearing member protruding through the opening  
formed in the support member and a closed position wherein the shutter covers the image  
bearing member protruding through the opening formed in the support member;  
a pressing member pressing the shutter toward the closed position; and

a shutter opening/closing regulation device connected with the shutter and the support member to be located, when the shutter is in the closed position, in a first position wherein the shutter opening/closing regulation device protrudes upward, and to be located, when the shutter is in the closed position, in a second position wherein a height of the shutter opening/closing regulation device is lower than that when the shutter opening/closing regulation device is located in the first position,

wherein the image bearing member unit is configured to be drawn out and put into a main body of an image forming apparatus, and

wherein, after the image bearing member unit in a state that the shutter is located in the closed position has been placed inside of the main body of the image forming apparatus, by moving the image bearing member unit upward relative to a member of the main body other than the image bearing member unit, the shutter opening/closing regulation device is pressed by the member of the main body other than the image bearing member unit downward to be located in the second position, and thereby the shutter is operated to move to the opened position.

Claim 87 (Original): The image bearing member unit according to Claim 86, wherein the shutter opening/closing regulation device includes a plurality of arms rotatably connected with each other, and

wherein a first arm of the plurality of arms is rotatably connected with the support member, a second arm of the plurality of arms is rotatably connected with the shutter, and the shutter is slidably assembled with the support member to move between the opened and closed positions.

Claim 88 (Original): The image bearing member unit according to Claim 87,

wherein the plurality of arms include at least four arms.

Claim 89 (Original): The image bearing member unit according to Claim 87,  
wherein a number of the plurality of arms of the shutter opening/closing regulation device and shapes of the plurality of arms of the shutter opening/closing regulation device are set such that the shutter opening/closing regulation device is in a symmetrical shape.

Claim 90 (Original): The image bearing member unit according to Claim 86,  
wherein the pressing member includes a plurality of springs arranged in point or line symmetry.

Claim 91 (Original): The image bearing member unit according to Claim 86,  
wherein the shutter opening/closing regulation device is configured to serve as a handle of the image bearing member unit.

Claim 92 (Original): The image bearing member unit according to Claim 91,  
wherein the image bearing member unit includes two units of the shutter opening/closing regulation device arranged in positions separated from each other, and  
wherein a vertical line passing a center of gravity of the image bearing member unit intersects with a line connecting substantially center parts of the two units of the shutter opening/closing regulation device.

Claim 93 (Original): The image bearing member unit according to Claim 91,  
wherein the shutter opening/closing regulation device includes a plurality of arms rotatably connected with each other, and

wherein a number of the plurality of arms is an odd number, and when the image bearing member unit is in a horizontal posture, an arm of the plurality of arms located in a center of the plurality of arms is put into a substantially horizontal posture.

Claim 94 (Original): The image bearing member unit according to Claim 91, wherein the shutter opening/closing regulation device is different from other parts of the image bearing member unit in color.

Claim 95 (Original): The image bearing member unit according to Claim 91, wherein the shutter opening/closing regulation device includes a slip stopper.

Claim 96 (Original): A process cartridge comprising:  
an image bearing member unit including;  
an image bearing member,  
a support member supporting the image bearing member such that the image bearing member protrudes through an opening formed in the support member,  
a shutter assembled with the support member to move between an opened position wherein the shutter does not cover the image bearing member protruding through the opening formed in the support member and a closed position wherein the shutter covers the image bearing member protruding through the opening formed in the support member,  
a pressing member pressing the shutter toward the closed position, and  
a shutter opening/closing regulation device connected with the shutter and the support member to be located, when the shutter is in the closed position, in a first position wherein the shutter opening/closing regulation device protrudes upward, and to be located, when the shutter is in the closed position, in a second position wherein a height of the shutter

opening/closing regulation device is lower than that when the shutter opening/closing regulation device is located in the first position; and

at least one process device for forming a toner image on the image bearing member of the image bearing member unit,

wherein the image bearing member unit is configured to be drawn out and put into a main body of an image forming apparatus, and

wherein, after the image bearing member unit in a state that the shutter is located in the closed position has been placed inside of the main body of the image forming apparatus, by moving the image bearing member unit upward relative to a member of the main body other than the image bearing member unit, the shutter opening/closing regulation device is pressed by the member of the main body other than the image bearing member unit downward to be located in the second position, and thereby the shutter is operated to move to the opened position.

Claim 97 (Original): The process cartridge according to Claim 96,  
wherein the shutter opening/closing regulation device includes a plurality of arms rotatably connected with each other, and

wherein a first arm of the plurality of arms is rotatably connected with the support member, a second arm of the plurality of arms is rotatably connected with the shutter, and the shutter is slidably assembled with the support member to move between the opened and closed positions.

Claim 98 (Original): The process cartridge according to Claim 97,  
wherein the plurality of arms include at least four arms.

Claim 99 (Original): The process cartridge according to Claim 97,  
wherein a number of the plurality of arms of the shutter opening/closing regulation device and shapes of the plurality of arms of the shutter opening/closing regulation device are set such that the shutter opening/closing regulation device is in a symmetrical shape.

Claim 100 (Original): The process cartridge according to Claim 96,  
wherein the pressing member includes a plurality of springs arranged in point or line symmetry.

Claim 101 (Original): The process cartridge according to Claim 96,  
wherein the shutter opening/closing regulation device is configured to serve as a handle of the image bearing member unit.

Claim 102 (Original): The process cartridge according to Claim 101,  
wherein the image bearing member unit includes two units of the shutter opening/closing regulation device arranged in positions separated from each other, and  
wherein a vertical line passing a center of gravity of the image bearing member unit intersects with a line connecting substantially center parts of the two units of the shutter opening/closing regulation device.

Claim 103 (Original): The process cartridge according to Claim 101,  
wherein the shutter opening/closing regulation device includes a plurality of arms rotatably connected with each other, and

wherein a number of the plurality of arms is an odd number, and when the image bearing member unit is in a horizontal posture, an arm of the plurality of arms located in a center of the plurality of arms is put into a substantially horizontal posture.

Claim 104 (Original): The process cartridge according to Claim 101,  
wherein the shutter opening/closing regulation device is different from other parts of the image bearing member unit in color.

Claim 105 (Original): The process cartridge according to Claim 101,  
wherein the shutter opening/closing regulation device includes a slip stopper.

Claim 106 (Original): The process cartridge according to Claim 96,  
wherein the image bearing member unit is detachable relative to a part of the process cartridge.

Claim 107 (Original): An image forming apparatus comprising:  
a main body;  
an image bearing member unit including,  
an image bearing member,  
a support member supporting the image bearing member such that the image bearing member protrudes through an opening formed in the support member,  
a shutter assembled with the support member to move between an opened position wherein the shutter does not cover the image bearing member protruding through the opening formed in the support member and a closed position wherein the shutter covers the image bearing member protruding through the opening formed in the support member,

a pressing member pressing the shutter toward the closed position, and

a shutter opening/closing regulation device connected with the shutter and the support member to be located, when the shutter is in the closed position, in a first position wherein the shutter opening/closing regulation device protrudes upward, and to be located, when the shutter is in the closed position, in a second position wherein a height of the shutter opening/closing regulation device is lower than that when the shutter opening/closing regulation device is located in the first position; and

at least one process device configured to form a toner image on the image bearing member of the image bearing member unit,

wherein the image bearing member unit is configured to be drawn out and put into the main body, and

wherein, after the image bearing member unit in a state that the shutter is located in the closed position has been placed inside of the main body, by moving the image bearing member unit upward relative to a member of the main body other than the image bearing member unit, the shutter opening/closing regulation device is pressed by the member of the main body other than the image bearing member unit downward to be located in the second position, and thereby the shutter is operated to move to the opened position.

Claim 108 (Original): The image forming apparatus according to Claim 107,

wherein the shutter opening/closing regulation device includes a plurality of arms rotatably connected with each other, and

wherein a first arm of the plurality of arms is rotatably connected with the support member, a second arm of the plurality of arms is rotatably connected with the shutter, and the shutter is slidably assembled with the support member to move between the opened and closed positions.



Claim 109 (Original): The image forming apparatus according to Claim 108,  
wherein the plurality of arms include at least four arms.

Claim 110 (Original): The image forming apparatus according to Claim 108,  
wherein a number of the plurality of arms of the shutter opening/closing regulation  
device and shapes of the plurality of arms of the shutter opening/closing regulation device are  
set such that the shutter opening/closing regulation device is in a symmetrical shape.

Claim 111 (Original): The image forming apparatus according to Claim 107,  
wherein the pressing member includes a plurality of springs arranged in point or line  
symmetry.

Claim 112 (Original): The image forming apparatus according to Claim 107,  
wherein the shutter opening/closing regulation device is configured to serve as a  
handle of the image bearing member unit.

Claim 113 (Original): The image forming apparatus according to Claim 112,  
wherein the image bearing member unit includes two units of the shutter  
opening/closing regulation device arranged in positions separated from each other, and  
wherein a vertical line passing a center of gravity of the image bearing member unit  
intersects with a line connecting substantially center parts of the two units of the shutter  
opening/closing regulation device.

Claim 114 (Original): The image forming apparatus according to Claim 112,

wherein the shutter opening/closing regulation device includes a plurality of arms rotatably connected with each other, and

wherein a number of the plurality of arms is an odd number, and when the image bearing member unit is in a horizontal posture, an arm of the plurality of arms located in a center of the plurality of arms is put into a substantially horizontal posture.

Claim 115 (Original): The image forming apparatus according to Claim 112, wherein the shutter opening/closing regulation device is different from other parts of the image bearing member unit in color.

Claim 116 (Original): The image forming apparatus according to Claim 112, wherein the shutter opening/closing regulation device includes a slip stopper.

Claim 117 (Original): The image forming apparatus according to Claim 107, wherein the image bearing member unit and the at least one process device are assembled with each other to form a process cartridge.

Claim 118 (Original): The image forming apparatus according to Claim 117, wherein the image bearing member unit is detachable relative to a part of the process cartridge.

Claim 119 (Currently Amended): An image bearing member unit comprising:  
an image bearing member on which a toner image is formed; and  
means for supporting the image bearing member such that the image bearing member protrudes through an opening formed in the supporting means, the supporting means

including housing means for housing a covering/uncovering means when the covering/uncovering means is in an opened position,

wherein the image bearing member unit is configured to be drawn out of and put into a main body of an image forming apparatus, and

wherein the image bearing member unit further comprises the means for covering and uncovering the image bearing member protruding through the opening formed in the supporting means, the covering/uncovering means being assembled with the supporting means to move in directions, substantially perpendicular to directions in which the image bearing member unit is drawn out of and put into the main body of the image forming apparatus, to be located, when the image bearing member unit has been drawn out of the main body of the image forming apparatus, in a closed position wherein the covering/uncovering means covers the image bearing member protruding through the opening formed in the supporting means, and to be located, when the image bearing member unit has been set in a predetermined position inside of the main body of the image forming apparatus, in the opened position wherein the covering/uncovering means does not cover the image bearing member protruding through the opening formed in the supporting means,

and wherein the means for covering and uncovering the image bearing member moves to the closed position and the opened position in conjunction with operations of attaching and detaching the image bearing member unit to and from the main body of the imaging forming apparatus.

Claim 120 (Currently Amended): A process cartridge comprising:  
an image bearing member unit including an image bearing member and means for supporting the image bearing member such that the image bearing member protrudes through an opening formed in the supporting means, the

supporting means including housing means for housing a covering/uncovering means when the covering/uncovering means is in an opened position; and

at least one means for forming a toner image on the image bearing member of the image bearing member unit,

wherein the image bearing member unit is configured to be drawn out of and put into a main body of an image forming apparatus, and

wherein the image bearing member unit further includes the means for covering and uncovering the image bearing member protruding through the opening formed in the supporting means, the covering/uncovering means being assembled with the supporting means to move in directions, substantially perpendicular to directions in which the image bearing member unit is drawn out of and put into the main body of the image forming apparatus, to be located, when the image bearing member unit has been drawn out of the main body of the image forming apparatus, in a closed position wherein the covering/uncovering means covers the image bearing member protruding through the opening formed in the supporting means, and to be located, when the image bearing member unit has been set in a predetermined position inside of the main body of the image forming apparatus, in the opened position wherein the covering/uncovering means does not cover the image bearing member protruding through the opening formed in the supporting means,

and wherein the means for covering and uncovering the image bearing member moves to the closed position and the opened position in conjunction with operations of attaching and detaching the image bearing member unit to and from the main body of the imaging forming apparatus.

Claim 121 (Currently Amended): An image forming apparatus comprising:  
a main body;

an image bearing member unit including an image bearing member and supporting means for supporting the image bearing member such that the image bearing member protrudes through an opening formed in the supporting means, the supporting means including housing means for housing a covering/uncovering means when the covering/uncovering means is in an opened position; and

at least one means for forming a toner image on the image bearing member of the image bearing member unit,

wherein the image bearing member unit is configured to be drawn out of and put into the main body, and

wherein the image bearing member unit further includes the means for covering and uncovering the image bearing member protruding through the opening formed in the supporting means, the covering/uncovering means being assembled with the supporting means to move in directions, substantially perpendicular to directions in which the image bearing member unit is drawn out of and put into the main body, to be located, when the image bearing member unit has been drawn out of the main body, in a closed position wherein the covering/uncovering means covers the image bearing member protruding through the opening formed in the supporting means, and to be located, when the image bearing member unit has been set in a predetermined position inside of the main body, in the opened position wherein the covering/uncovering means does not cover the image bearing member protruding through the opening formed in the supporting means,

and wherein the means for covering and uncovering the image bearing member moves to the closed position and the opened position in conjunction with operations of attaching and detaching the image bearing member unit to and from the main body of the imaging forming apparatus.

Claim 122 (Original): An image bearing member unit comprising:

an image bearing member on which a toner image is formed;

means for supporting the image bearing member such that the image bearing member protrudes through an opening formed in the supporting means;

means for covering and uncovering the image bearing member protruding through the opening formed in the supporting means, the covering/uncovering means being assembled with the supporting means to move between an opened position wherein the covering/uncovering means does not cover the image bearing member protruding through the opening formed in the supporting means and a closed position wherein the covering/uncovering means covers the image bearing member protruding through the opening formed in the supporting means;

means for pressing the covering/uncovering means toward the closed position; and

means for regulating the covering/uncovering means connected with the covering/uncovering means and the supporting means to be located, when the covering/uncovering means is in the closed position, in a first position wherein the covering/uncovering means regulating means protrudes upward, and to be located, when the covering/uncovering means is in the closed position, in a second position wherein a height of the covering/uncovering means regulating means is lower than that when the covering/uncovering means regulating means is located in the first position,

wherein the image bearing member unit is configured to be drawn out and put into a main body of an image forming apparatus, and

wherein, after the image bearing member unit in a state that the covering/uncovering means is located in the closed position has been placed inside of the main body of the image forming apparatus, by moving the image bearing member unit upward relative to a member of the main body other than the image bearing member unit, the covering/uncovering means

regulating means is pressed by the member of the main body other than the image bearing member unit downward to be located in the second position, and thereby the covering/uncovering means is operated to move to the opened position.

Claim 123 (Original): A process cartridge comprising:

- an image bearing member unit including;
- an image bearing member,
- means for supporting the image bearing member such that the image bearing member protrudes through an opening formed in the supporting means,
- means for covering/uncovering the image bearing member protruding through the opening formed in the supporting means, the covering/uncovering means being assembled with the supporting means to move between an opened position wherein the covering/uncovering means does not cover the image bearing member protruding through the opening formed in the supporting means and a closed position wherein the covering/uncovering means covers the image bearing member protruding through the opening formed in the supporting means,
- means for pressing the covering/uncovering means toward the closed position, and
- means for regulating the covering/uncovering means connected with the covering/uncovering means and the supporting means to be located, when the covering/uncovering means is in the closed position, in a first position wherein the covering/uncovering means regulating means protrudes upward, and to be located, when the covering/uncovering means is in the closed position, in a second position wherein a height of the covering/uncovering means regulating means is lower than that when the covering/uncovering means regulating means is located in the first position; and

at least one means for forming a toner image on the image bearing member of the image bearing member unit,

wherein the image bearing member unit is configured to be drawn out and put into a main body of an image forming apparatus, and

wherein, after the image bearing member unit in a state that the covering/uncovering means is located in the closed position has been placed inside of the main body of the image forming apparatus, by moving the image bearing member unit upward relative to a member of the main body other than the image bearing member unit, the covering/uncovering means regulating means is pressed by the member of the main body other than the image bearing member unit downward to be located in the second position, and thereby the covering/uncovering means is operated to move to the opened position.

Claim 124 (Original): An image forming apparatus comprising:

a main body;

an image bearing member unit including;

an image bearing member,

means for supporting the image bearing member such that the image bearing member protrudes through an opening formed in the supporting means,

means for covering/uncovering the image bearing member protruding through the opening formed in the supporting means, the covering/uncovering means being assembled with the supporting means to move between an opened position wherein the covering/uncovering means does not cover the image bearing member protruding through the opening formed in the supporting means and a closed position wherein the covering/uncovering means covers the image bearing member protruding through the opening formed in the supporting means,



means for pressing the covering/uncovering means toward the closed position, and  
means for regulating the covering/uncovering means connected with the  
covering/uncovering means and the supporting means to be located, when the  
covering/uncovering means is in the closed position, in a first position wherein the  
covering/uncovering means regulating means protrudes upward, and to be located, when the  
covering/uncovering means is in the closed position, in a second position wherein a height of  
the covering/uncovering means regulating means is lower than that when the  
covering/uncovering means regulating means is located in the first position; and

at least one means for forming a toner image on the image bearing member of the  
image bearing member unit,

wherein the image bearing member unit is configured to be drawn out and put into a  
main body of an image forming apparatus, and

wherein, after the image bearing member unit in a state that the covering/uncovering  
means is located in the closed position has been placed inside of the main body of the image  
forming apparatus, by moving the image bearing member unit upward relative to a member  
of the main body other than the image bearing member unit, the covering/uncovering means  
regulating means is pressed by the member of the main body other than the image bearing  
member unit downward to be located in the second position, and thereby the  
covering/uncovering means is operated to move to the opened position.